

## Message Text

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ACTION OES-06

INFO OCT-01 EUR-12 ISO-00 AID-05 CEA-01 CIAE-00 COME-00  
EB-08 EA-09 FRB-01 INR-07 IO-13 NEA-10 NSAE-00  
USIA-15 OPIC-06 SP-02 TRSE-00 LAB-04 SIL-01 AGRE-00  
OMB-01 ACDA-10 L-03 NSC-05 NRC-07 FEAE-00 DODE-00  
ERDA-07 CEQ-01 EPA-04 NSF-02 PM-04 SS-15 INT-05 HEW-06  
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FM USMISSION OECD PARIS

TO SECSTATE WASH DC 5699

INFO USMISSION EC BRUSSELS

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PASS: STATE FOR PROCHNIK; ERDA FOR SIEVERING, GREER,  
VANDERRYN, CUNNINGHAM; USEC FOR PURPLE

E.O. 11652: N/A

TAGS: OECD, TECH

SUBJECT: INTERNATIONAL PROGRAM FOR CONDITIONING OF  
HIGH-LEVEL RADIOACTIVE WASTE

1. SUMMARY. A REVISED PROPOSAL FOR INTERNATIONAL COOPERATION IN WASTE MANAGEMENT TO BE CARRIED OUT AT THE EUROCHEMIC COMPANY WILL SOON BE COMPLETED BY NEA. MISSION DISCUSSES REVISED PROJECT IN RELATION TO ISSUES PREVIOUSLY RAISED IN CONNECTION WITH U.S. PARTICIPATION. END SUMMARY
2. AN INTERNATIONAL R&D PROGRAM ON THE CONDITIONING OF HIGH-LEVEL RADIOACTIVE WASTE AT THE EUROCHEMIC COMPANY HAS BEEN UNDER ACTIVE CONSIDERATION FOR THE PAST TWO YEARS. PROGRESS TOWARDS AN AGREED UPON PROGRAM HAS BEEN SLOW. DELAYS HAVE VARIOUSLY BEEN ATTRIBUTED TO INSUFFICIENT ATTENTION PROVIDED BY NEA, THE LEAD ORGANIZATION, TO UNCERTAINTIES INVOLVING THE

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LEGAL OBLIGATIONS OF EUROCHEMIC WITH REGARD TO SELECTION OF A SUITABLE SOLIDIFICATION PROCESS, AS WELL AS WORLDWIDE UNCERTAINTIES IN NATIONAL WASTE MANAGEMENT PROGRAMS AND POLICIES.

3. RECENTLY, A SIGNIFICANT CHANGE IN THE PROPOSED PROGRAM OCCURRED. THE EUROCHEMIC-DEVELOPED LOTES

PROCESS WAS SELECTED BY THE EUROCHEMIC COMPANY TO REPLACE THE ORIGINALLY PROPOSED U.S. FLUIDIZED BED CALCINATION TECHNIQUE AS THE INITIAL STEP IN THE WASTE CONDITIONING PROGRAM. A REVISED PROPOSAL IS SCHEDULED FOR RELEASE BY NEA WITHIN THE NEXT WEEK. COMMENTS AND COMMITMENTS WILL BE CALLED FOR BY MID-MAY. IN VIEW OF THE CHANGED SITUATION, MISSION BELIEVES IT APPROPRIATE TO DISCUSS THE REVISED PROGRAM IN RELATION TO THE PRINCIPAL ISSUES PREVIOUSLY RAISED IN REGARD TO U.S. PARTICIPATION IN THE PROJECT. INFORMATION PRESENTED BELOW IS BASED IN PART UPON A RECENT VISIT BY OECD SCIENCE ADVISOR FOR ENERGY R&D AND TECHNOLOGICAL MATTERS TO THE EUROCHEMIC COMPANY.

4. IN MISSION VIEW, THE SIGNIFICANT ISSUES RELATING TO U.S. PARTICIPATION HAVE CENTERED UPON THE FOLLOWING QUESTIONS: (A) IS THE U.S. SIMPLY HELPING TO BAIL OUT THE EUROCHEMIC COMPANY REGARDING ITS OBLIGATION TO THE BELGIAN GOVERNMENT TO CONDITION ITS HIGH LEVEL WASTE?

(B) IS THE U.S. ALREADY ENTITLED TO EUROCHEMIC WASTE MANAGEMENT TECHNOLOGY UNDER THE TERMS OF AN EARLIER BILATERAL AGREEMENT?

(C) IS OUR PROPOSED CONTRIBUTION EQUITABLE?

(D) WHAT ARE THE ADVANTAGES TO THE U.S. OF PARTICIPATION IN THE PROPOSED PROGRAM?

5. WITH REGARD TO QUESTION (A), THERE IS CURRENTLY 67 M3 OF PUREX WASTE AND 806 M3 OF MTR WASTE LOCATED AT THE EUROCHEMIC PLANT SITE IN MOL, BELGIUM. ALL OF UNCLASSIFIED

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THE PUREX WASTE WILL BE SOLIDIFIED INTO PHOSPHATE GLASS BEADS BY THE PAMELA PROCESS, A JOINT GELSENBERG-EUROCHEMIC DEVELOPMENT. THE ENTIRE QUANTITY OF MTR WASTE WILL NOW BE SOLIDIFIED USING THE EUROCHEMIC DEVELOPED LOTES METHOD INSTEAD OF THE U.S.-DEVELOPED FLUIDIZED BED CALCINATION PROCESS AS PREVIOUSLY PROPOSED. BETWEEN 80 AND 90 OF THE LOTES MATERIAL WILL BE MELTED INTO GLASS BLOCKS. ONLY THE REMAINDER WILL BE AVAILABLE FOR INCORPORATION INTO A METAL MATRIX WITHIN THE FRAMEWORK OF THE INTERNATIONAL R&D PROGRAM. THUS AS CURRENTLY ENVISIONED, THE EUROCHEMIC WASTE CONDITIONING PROGRAM RELIES ON ITS OWN TECHNOLOGY TO FULFILL ITS LEGAL OBLIGATIONS AND NOT ON U.S. TECHNOLOGY OR ON DEVELOPMENTS WHICH MAY ACCRUE FROM THE INTERNATIONAL PROGRAM. ACCORDINGLY, IT DOES NOT APPEAR THAT OUR PARTICIPATION IN THE INTERNATIONAL PROJECT CAN BE VIEWED AS PROVIDING BASIC SUPPORT TO THE

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EUROCHEMIC COMPANY. HOWEVER, AT THE SAME TIME, IT MUST BE RECOGNIZED THAT CONSTRUCTION OF THE LOTES AND PAMELA FACILITIES, WHICH IS TO BEGIN IN SEPTEMBER, IS NOT EXPECTED TO BE COMPLETED UNTIL 1982. CONSEQUENTLY, ALTHOUGH PRESENT PLANS CALL FOR EMPLOYING METAL MATRIX TECHNOLOGY ON ONLY A RELATIVELY SMALL QUANTITY OF WASTE, EUROCHEMIC WILL BE IN A POSITION TO CHANGE ITS FINAL CONDITIONING STEP BASED UPON DEVELOPMENTS WHICH MAY OCCUR DURING THE CONSTRUCTION PERIOD.

THE MAIN DISADVANTAGE OF THE METALLIC MATRIX APPROACH IS SEEN BY EUROCHEMIC SIMPLY IN CONNECTION WITH PROBLEMS ASSOCIATED WITH THE INCORPORATION OF AN ADDITIONAL STEP INTO THE WASTE CONDITIONING PROCESS. THE PRINCIPAL BENEFITS ACCRUE FROM THE POSSIBILITY OF FABRICATING AND CONSEQUENTLY HANDLING A SMALLER NUMBER OF LARGER BLOCKS AND ALSO THE ELIMINATION OF DEVITRIFICATION CONCERNS, BOTH FACTORS CONNECTED WITH THE SUPERIOR HEAT TRANSFER PROPERTIES OF THE METAL MATRIX. IN THIS REGARD, THE PHOSPHATE GLASS BEADS, RESULTING

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FROM THE PAMELA PROCESS DISPLAY A TENDENCY TOWARDS DEVITRIFICATION AND MUST ALSO BE EMBEDDED INTO A METALLIC MATRIX. THUS, AS IT EMBODIES A COMMON STEP, THE DEVELOPMENT OF THE PROPRIETARY PAMELA PROCESS FOR THE SOLIDIFICATION OF COMMERCIAL TYPE LWR WASTES ON A SEMI-INDUSTRIAL SCALE MAY BE SEEN AS DIRECTLY BENEFITING FROM THE INTERNATIONAL PROGRAM. INDEED, THE METAL EMBEDDING UNIT OF THE INTERNATIONAL PROGRAM WILL BE COMBINED IN THE SAME CELL AS THE PAMELA UNIT. IT IS SUGGESTED THAT THIS ASPECT OF THE INTERNATIONAL PROJECT BE EXAMINED CLOSELY PARTICULARLY AS REGARDS INTELLECTUAL PROPERTY AND PROPRIETARY RIGHTS.

6. REGARDING QUESTION (B), THE TERMS OF THE 1973 AGREEMENT WOULD APPEAR TO ENTITLE THE U.S. TO RESULTS OF CALCINE CONDITIONING STUDIES AS WELL AS OTHER BASE PROGRAM R&D IN RETURN FOR THE BACKGROUND INFORMATION ON FLUIDIZED BED TECHNOLOGY WHICH WE HAVE ALREADY PROVIDED. E. DETILLEUX, GENERAL MANAGER OF THE EUROCHEMIC COMPANY, CLEARLY RECOGNIZES THIS POINT. HOWEVER, AS A RESULT OF THE SHIFT BY EUROCHEMIC TO THE PRODUCTION OF PHOSPHATE BASED GRANULES (BOTH FROM THE PAMELA AND LOTES PROCESS) INSTEAD OF FLUIDIZED BED CALCINE, IT WOULD APPEAR THAT THERE IS NOW A SIGNIFICANTLY REDUCED LINKAGE BETWEEN THE PREVIOUS AGREEMENT AND THE PROPOSED INTERNATIONAL PROJECT. IN ANY EVENT, IT IS INTENDED TO PROVIDE THE RESULTS OF THE INTERNATIONAL PROGRAM ONLY TO DIRECT PARTICIPANTS (THIS WILL EXCLUDE THE U.K., FOR EXAMPLE). ON THE OTHER HAND, ON THE BASIS OF THE EXISTING AGREEMENT, DETILLEUX STATED HE IS PREPARED TO RECOMMEND TO THE EUROCHEMIC BOARD OF DIRECTORS THAT BASE PROGRAM INFORMATION INCLUDING LOTES PROCESS R&D BE MADE AVAILABLE TO THE U.S. ON A SIMILAR BASIS AS EUROCHEMIC SHAREHOLDERS. ALTHOUGH HE DID NOT CONNECT THIS OFFER TO THE PROPOSED INTERNATIONAL PROJECT, HE EMPHASIZED UNCLASSIFIED

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THAT HE DID NOT BELIEVE THE INTERNATIONAL PROGRAM WOULD PROCEED WITHOUT FULL U.S. SUPPORT.

MISSION BELIEVES IF U.S. INTENDS TO PROCEED WITH THE INTERNATIONAL AGREEMENT, THAT AN EARLY MEETING BE ARRANGED WITH THE EUROCHEMIC COMPANY TO RESOLVE EXISTING UNCERTAINTIES. IT APPEARS POSSIBLE THAT WE MAY BE ABLE TO OBTAIN A SIGNIFICANT FRACTION OF THE EUROCHEMIC R&D PROGRAM WITHIN THE FRAMEWORK OF THE TWO AGREEMENTS. HOWEVER, WE SUGGEST THAT THEY NOT BE DIRECTLY LINKED.

7. AS REGARDS QUESTION THREE, MISSION DOES NOT YET HAVE FULL DETAILS OF THE NEW PROGRAM, BUT HAS BEEN ADVISED THAT LOTES PLANT COSTS ARE GREATER THAN FLUIDIZED BED AND THAT CAPITAL AND OPERATING COSTS FOR THE COMBINED PAMELA AND LOTES FACILITIES WILL BE IN THE ORDER OF 40 MILLION DOLLARS. PAMELA COSTS, WHICH ARE EXPECTED TO BE LESS THAN HALF THE TOTAL, WILL BE ASSUMED BY GELSENBERG. DUE TO COST ESCALATION, EXPENSES FOR THE INTERNATIONAL PROGRAM WILL BE ABOUT 20 GREATER THAN THE PREVIOUS ESTIMATE OF 10 MILLION DOLLARS.

AS THE U.S. WILL NOT NOW BE PROVIDING TECHNICAL ASSISTANCE WHICH COULD BE CONSIDERED AS A CONTRIBUTION IN KIND, WE WILL BE EXPECTED TO CONTRIBUTE AN ENTRANCE

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FEE TO COVER A SHARE OF FACILITY COSTS AS WELL AS OTHER SUPPORTING SERVICES. THIS WILL BE IN THE RANGE OF ONE MILLION DOLLARS. IT SEEMS TO US THAT THE EXTENT TO WHICH THESE FUNDS CONTRIBUTE TO THE LOTES PLANT COULD BE QUESTIONED ON THE BASIS THAT EUROCHEMIC IS BOUND TO CONSTRUCT THE LOTES FACILITY TO MEET ITS LEGAL OBLIGATIONS. WE WILL ALSO BE ASKED FOR ANOTHER TWO MILLION DOLLARS AS OUR CONTRIBUTION TO THE

OPERATING COSTS OF THE INTERNATIONAL PROGRAM. IN THIS CASE, BECAUSE OF THE EXPECTED EC CONTRIBUTION, OUR SHARE WILL REPRESENT ONLY ABOUT 20 OF THE TOTAL, WHICH APPEARS REASONABLE CONSIDERING THE LARGER AMOUNTS WE ARE USUALLY ASKED TO CONTRIBUTE TOWARDS INTERNATIONAL PROJECTS.

8. WITH REGARD TO QUESTION (D), IT SEEMS THAT THE BASIC ADVANTAGES FOR PARTICIPATION HAVE NOT BEEN ALTERED BY THE CHANGE IN PROGRAM ORIENTATION. INDEED, WE HAD LITTLE TO GAIN BY USE OF OUR ALREADY PROVEN UNCLASSIFIED

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SOLIDIFICATION TECHNOLOGY WHICH, BESIDES, WAS NOT CONSIDERED IDEALLY SUITED FOR EMBEDDING INTO A METAL MATRIX. U.S. INTEREST IS STILL SEEN AS PRIMARILY RELATED TO:

(A) THE DEVELOPMENT OF A BACKUP OR POSSIBLE FUTURE ALTERNATIVE FOR A HIGH LEVEL WASTE FORM WHICH WOULD ALLOW US TO REDUCE DOMESTIC ACTIVITIES IN THIS FIELD. THE NEED FOR A BACKUP IS, OF COURSE, A PROGRAMMATIC DECISION.

(B) DEVELOPMENT OF A PROCESS WHICH MAY ALSO HAVE TECHNICAL ADVANTAGES IN CERTAIN SPECIALIZED APPLICATIONS, FOR EXAMPLE, CONDITIONING OF VERY ACTIVE WASTE.

(C) ESTABLISHMENT OF A BASIS FOR INTERNATIONAL COOPERATION IN RADIOACTIVE WASTE MANAGEMENT R&D BY EXPRESSING ERDA'S COMMITMENT TO COOPERATION IN THIS AREA.

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## Message Attributes

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